

FLIGHT

The
AIRCRAFT
ENGINEER
&
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

1922.

- June 1 Entries close for Schneider Cup Race
June 3 R.Ae.C. Whitsun Race Meeting, at Waddon
June 23-25 International Competition for Touring Aeroplanes, Brussels
July 29 Aerial Derby, starting at Waddon
Aug. 6-20 French Gliding Competition
Aug. 6 Gordon-Bennett Balloon Race, Geneva
Aug. 7 R.Ae.C. Race Meeting, at Waddon
Aug. (last fortnight) Schneider Cup Seaplane Race, at Naples
Sept. Tyrrhenian Cup, Italy
Sept. Italian Grand Prix
Sept. or Oct. R.Ae.C. Race Meeting, at Waddon
Sept. 22 Coupe Deutsche (300 kil.)

1923.

- Dec. 1 Entries Close for French Aero Engine Competition

1924.

- Mar. 1 French Aero Engine Competition.

INDEX FOR VOL. XIII.

The Index for Vol. XIII of FLIGHT (January to December, 1921) is now ready, and can be obtained from the Publishers, 36, Great Queen Street, Kingsway, W.C. 2. Price 1s. per copy. (1s. 1d. post free).

EDITORIAL COMMENT.



As foreshadowed by Capt. Guest in his Budget Speech, with the resignation of Sir Frederick Sykes from the post of Controller-General of Civil Aviation that office has ceased to exist, and in its stead a new appointment is being established, to be known as the Directorate of Civil Aviation. Whatever may be one's opinion regarding the wisdom of this decision, few will quarrel with the selection of Maj.-Gen. Sir W. Sefton Brancker, K.C.B., A.F.C., for the post of Director of Civil Aviation. Sir Sefton Brancker is well known to all interested in aviation, and he carries to his new post qualities which should be of the greatest value during the difficult times that are in front of us. We say difficult because, with the growing realisation of the importance of aviation from a defence point of view, the day cannot be far distant when we must establish that "national striking force" upon which our safety depends, and whose necessity has been so well advocated by General Groves in *The Times* lately. As such a force can only be established by developing civil aviation, to Gen. Sir Sefton Brancker will fall the task of co-operating with the leaders of the R.A.F. in the planning of the separate yet interdependent civil and military air organisations which shall ensure the necessary liaison.

Sir Sefton Brancker's appointment will be welcomed because he is intensely enthusiastic about the future of aviation; because he has sufficient common sense not to be misled or hoodwinked; and because he was never afraid of speaking his mind, no matter to whom he was addressing his remarks. The fact that his position will not be quite on the same plane as that of a C.G.C.A. will not matter greatly to Sir Sefton Brancker. He will not, presumably, have a seat on the Air Council, but he is not the man to be discouraged by such a handicap, and it may be taken

for granted that he will see to it that his views and recommendations are conveyed to the right quarters, and forcibly brought before the authorities. The onus of acting upon such advice will then rest upon the Government, and as we have little doubt that the new D. of C.A. will have a very large body of public opinion behind him, we look forward to his term of office with every confidence.

At the same time, if Sir Sefton Brancker is to do for aviation and for the Empire what we are sure he is determined to do, he must be given every assistance, and, as he himself said in a letter to the Air League of the British Empire, expenditure can only be justified when supported by a strong body of public opinion. We in FLIGHT have always done our best to impress upon the public the vital importance to the Empire of air power. There are signs that the daily press is also beginning to realise the fact, and hence we are hopeful of the future. Once let the man in the street realise how really urgent is the need for aerial preparedness, and public opinion will be so strong that no Government would dare to oppose it. As D. of C.A. Sir Sefton Brancker will do his share. It is up to the general public to see that the Government ceases to fool upon our national security.

South African Ratification of International Air Convention

In the Union of South Africa Government *Gazette* of February 1, 1922, we are pleased to see that a Bill was included "to enable effect to be given to the International Convention for regulating air navigation, and to make provision for the control, regulation and encouragement of flying within the Union, and for other purposes identical thereto." The Aviation Act, 1922, as the new Act may be cited "for all purposes," provides for the ratification on behalf of the Union of South Africa, by His Majesty the King, of the International Air Convention signed in Paris on October 13, 1919.

The Bill confers upon the Governor-General powers to ratify any amendments of or additions to the Convention, to make regulations relating to the licensing, inspection, etc., of aircraft and aerodromes, the issue of certificates, and, in short, to act in the general interests of the Union, always in conformity with, as far as they affect it, the International Air Convention. According to the Bill, the Governor-General may appoint a civil air board consisting of not more than seven persons, to act in an advisory capacity and advise as to regulations made under the Act, matters arising out of the application to the Union of the rules made under the Convention, the encouragement of flying, and proposals for establishment of air services.

The Bill provides that in case of emergency the Governor-General may declare the Union or parts thereof to be restricted area and issue orders and instructions in respect of such restricted areas, as well as taking possession of and using for purposes of defence any aircraft or aerodrome in the Union, subject to payment of compensation. The Bill also requires all public aerodromes to be licensed or approved by a duly prescribed authority.

The investigation of accidents has been given due attention, and the Act prescribes that the Minister (presumably of Posts and Telegraphs, who introduced the Bill) may appoint one or more persons as a board of enquiry to make investigations into accidents.

The accident enquiry board is to be given power to examine witnesses on oath and to call for the production of log books, licences, etc.

We might quote from the Bill a number of other provisions made for various contingencies, but suffice it to say that, taken as a whole, the Bill appears to be modelled on very sensible lines, and should go a long way towards establishing aviation in South Africa on sound lines as regards legislation. It is to be hoped that the introduction of this Bill will mark the beginning of a vigorous policy on the part of the Union Government, so that South Africa may take the place in the world's aviation to which her importance and geographical conditions entitle her.

The Airship Scheme

The airship scheme submitted to the Air Ministry some weeks ago by Commander Burney, and in which Messrs. Vickers, Ltd., and the "Shell" group were to interest themselves, was at first turned down, it may be remembered, the reason given being that, in the view of the Government, the financial guarantees asked for were too large. A modified scheme was then submitted in which the company, if the scheme was accepted, undertook to refund to the Government certain moneys after a period of years. The latest proposal has now been considered by the Air Council, and the following reply has been made by the Air Ministry:—

The Air Council have had under further consideration your latest proposals for the establishment of a commercial line of airships to India and to Australia, and I am directed to inform you that, in the opinion of the Air Council, the scheme as now put forward by you constitutes a notable advance upon any other scheme for the utilisation of airships in connection with Imperial communications which has previously been submitted to the Air Council.

They further consider that, with certain additions, given below, the scheme offers a reasonable prospect of being able to operate ships satisfactorily between India and this country, subject to definite recognition of the fact that any undertaking involving the regular use of airships as a means of communication must necessarily be of a highly speculative nature, especially from the commercial point of view.

(1) The number of airships to be provided to be increased from five to six.

(2) An airship base, complete with airship shed, and the necessary plant, to be erected in India.

The Air Council are at this stage unable to make any statement regarding the financial aspect of the scheme.

So far as it goes, this reply from the Air Ministry is satisfactory. There still remains the financial aspect, to be studied by the Air Ministry and the Treasury. The reply, following the deliberations of these two bodies, may be less favourable. We say may, although we do not necessarily think it will be. For one thing, it seems possible that, if the scheme is turned down on financial grounds by the Air Ministry, the Admiralty may interest itself in it. It is well known that the Admiralty "turned down" airships on financial grounds, and if this scheme could be so worked as to give the Admiralty a certain interest in the undertaking at relatively low cost, some arrangement might be reached whereby the Admiralty would sponsor the scheme, or a somewhat similar one.

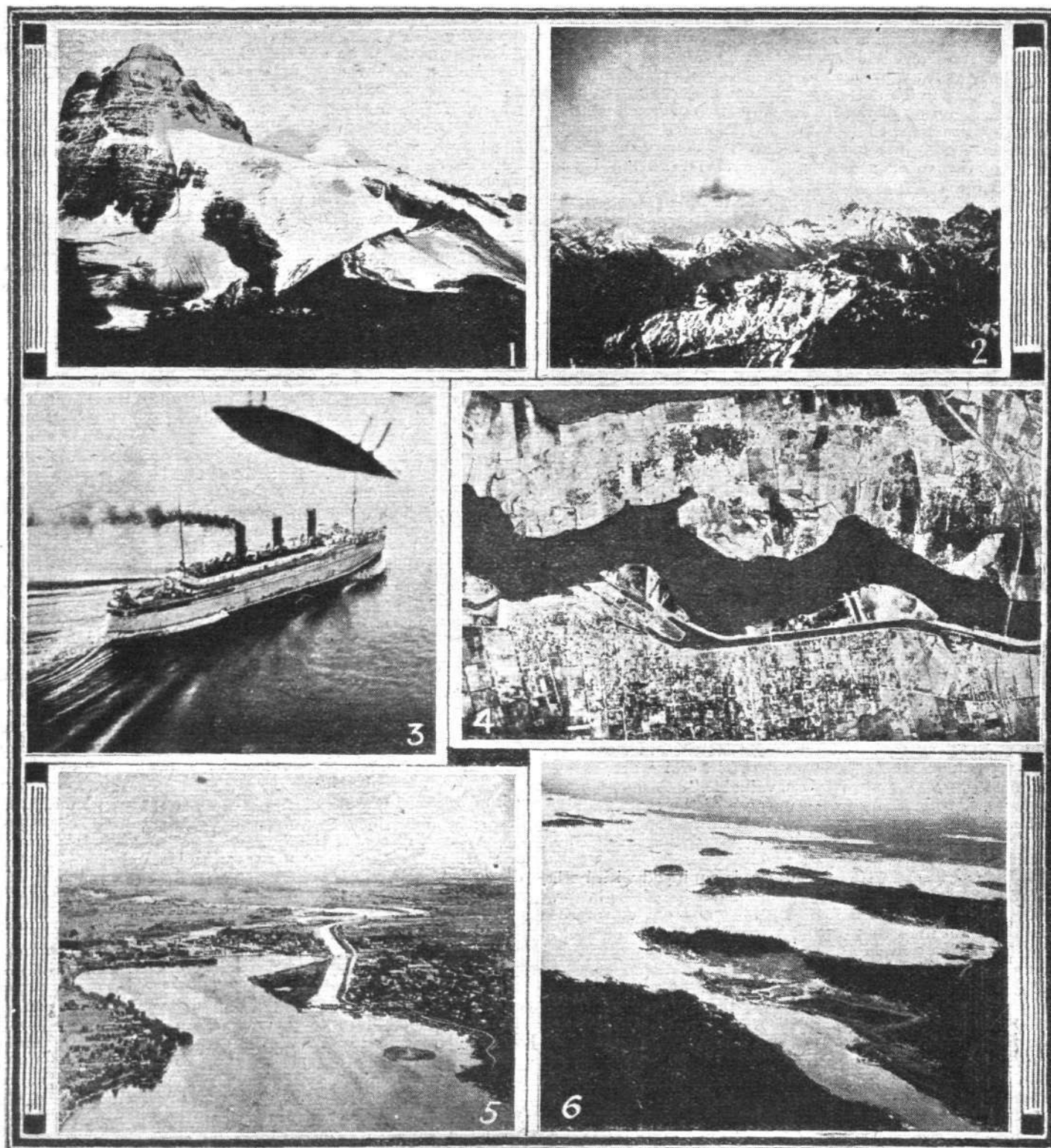
It is, however, unlikely that the Air Ministry would like the Admiralty to come forward and take up the "fathering" of the proposed scheme, and this fact may, conceivably, influence the Air Ministry to the extent of causing the suggestions of Commander Burney to be accepted. At any rate, the prospects for airships are, we think, brighter than they have been for a long time.

CANADA'S USE OF SEAPLANES

A Lesson to the "Old Country"

It has repeatedly been pointed out in *FLIGHT* that for some unknown and inexplicable reason the seaplane, the type of aircraft which one would naturally expect to have received a maximum of development, has been very stepmotherly treated in this country. Separated as the parts of our Empire are by leagues of ocean, it might have been taken for

granted that aircraft making the sea its "aerodrome" would be the first type to come to mind in speculating on the possibilities of linking up the Mother Country with the Colonies and Dominions. Yet, as we have already remarked, the seaplane, for lack of encouragement, is at the stage of development where land machines were five or six years ago. But



AERIAL PHOTOGRAPHS ILLUSTRATING ACTIVITIES OF CANADIAN FLYING OPERATIONS BRANCH DURING SUMMER SEASON OF 1921 : 1. Unnamed peak, Maligne Lake, Jasper Park, Alta. 2. Cascade Mountains, near Vancouver, B.C., illustrating reconnaissance flight for Primary Triangulation Scheme, Geodetic Survey Branch. 3. "Empress of Russia" escorted into Vancouver, B.C., illustrating Customs Patrols for prevention of drug smuggling. 4. "Mosaic" of St. Lawrence River and Canal, Cornwall, Ont. 5. St. Lawrence River and Canal System, Valleyfield, P.Q., illustrates photographic reconnaissance of international deep waterways system for Great Lakes ocean-going traffic scheme. 6. Hudson Bay fort at Norway House, L. Winnipeg, illustrates forest reconnaissance and fire protection, and survey of Northern Areas for Land Drainage and Reclamation Projects.

for the enthusiasm and far-sightedness of a very few firms with confidence in the ultimate importance of the seaplanes, we might have been in a position even worse than that which actually obtains.

Although there are signs that the gospel preached by FLIGHT is beginning to bear fruit, progress is far less rapid than it ought to be, and the following notes, dealing with the use of seaplanes in Canada, are therefore published with a view to furnishing an example of what can be done, even with relatively antiquated machines. It does not require a great deal of imagination to picture other uses for really modern seaplanes, not to mention the things of which the seaplane of the near future will be capable. In these remarks about seaplanes we include its most recent development the amphibian, which is, of course, a seaplane provided with some form of wheel undercarriage which allows the machine to alight on land as easily as it alights on the sea.

The following notes are extracts from and comments on some of the activities of the Flying Operations Branch of the Canadian Government Civil Aviation. It should be pointed out that these notes include a small portion only of the work done, many other operations no less useful having been carried out by land machines.

During August and September of 1921 routine patrols were carried out from the Air Station at Vancouver. The work included weekly inspection trips covering the Provincial Government's forests and the Dominion Forest Belt. Also transportation to inaccessible regions for the Geodetic Survey Branch of the Department of Marine and Fisheries, inspection trips for the Fisheries Branch, and preventative patrols for the Department of Customs and Inland Revenue. The machines used were one F. 3 and three H.S. 2 L. flying boats.

At Victoria Beach, Man., two F. 3 and one H.S. 2 L. flying boats were used during August and September, and patrols were carried out on behalf of the Forestry Branch, valuable results being obtained in locating and fighting forest fires, in the transportation of survey parties to inaccessible regions, and in inspection trips for district inspectors, fire rangers, and other officers of the Government, which would occupy too much time if undertaken by canoe route. A weekly patrol was flown from Victoria Beach to Norway House at the head of Lake Winnipeg, and return via Lake Winnipegosis and Lake Manitoba. This patrol covered over 800 miles, and was accomplished in from ten to twelve hours' flying.

Also during August and September, 1921, the Northern Ontario Mobile Unit did a lot of very-useful work for the Government of Ontario, in the nature mostly of forest reconnaissance and timber cruising over certain blocks of land north of the Trans-Continental railway. The forest types and extent of growth were sketched-in from the air, and landings were made at frequent intervals in order to send men in on foot to check the details secured from the air. The official report states that "These cruises on foot have indicated in every case that the types sketched-in from the air are correct, and that, therefore, the aerial cruise, occupying as it does so little time, is very valuable." Although fire protection was not the primary purpose of the Mobile Unit, forest fires were reported, and on occasion fire rangers have been flown to the scene of the fires. The machines used were three H.S. 2 L. flying boats.

The Air Station at Ottawa, Ontario, is equipped with both land machines and seaplanes. Of the activities of the latter, which include one H.S. 2 L. flying boat and one Avro seaplane, mention may be made of photographic survey work, including a photographic survey of the St. Lawrence River and Canal system. Vertical and oblique photographs were secured of points where works are proposed. A photographic survey of the Welland Canal, showing the old canal and the work done on the new canal, was also completed, and certain photographic survey work of the Gatineau Valley was carried out for the Geodetic Survey Branch.

The Air Station at Roberval, Lake St. John, P.Q., carried out forest fire patrols and timber sketching on behalf of the Government of Quebec, the machines on several occasions being within a few miles of Lake Mistassini. Petrol has been "cached" at distant points so that operations further afield may be undertaken this year. The machines used by this station were three H.S. 2 L. flying boats.

Operations of Special Interest

In the foregoing notes only the merest outline has been given of the work undertaken. Certain special flights and operations deserve, however, more detailed reference, and in the following we shall endeavour to give, within the space at our disposal, more specific instances of the manner in which the various classes of work were undertaken and the results obtained, as well as the considered opinions of the various

officials (outside the Canadian Air Force) for whom the work was undertaken. As these officials are not in any way prejudiced in favour of doing their work by the aid of aircraft, but are merely concerned with the most efficient way of doing that work, their opinions carry a good deal more weight than that of C.A.F. officers, who might be accused of being too enthusiastic and of looking upon the possibilities of aircraft in an optimistic light.

A 1,000 Miles Demonstration Flight.—Early in August, 1921, a 1,000 miles demonstration flight was undertaken, entailing a complete circuit of Lakes Winnipeg, Winnipegosis and part of Lake Manitoba, and as far north as The Pas and Cumberland House. This flight was undertaken for the District Forest Inspector for Manitoba, Lieut.-Col. H. I. Stevenson, who was taken as passenger throughout the trip. The object of the flight was twofold:—(a) To enable a special investigation to be made of the possibilities of instituting aerial forest patrols over virtually the whole of the forest areas of Northern Manitoba, and (b) to enable District Fire Rangers to be taken up and flown over their respective districts.

The route followed, starting and finishing at Victoria Beach Station, was as follows:—Victoria Beach, Manigotogan, Berens River, Norway House, The Pas, Cumberland House, Cedar Lake, Grand Rapids, Winnipegosis, Sturgeon Bay and Victoria Beach. Stops were made at Norway House, The Pas, Cumberland House and Winnipegosis, where District Fire Rangers were flown over their respective areas and given a comprehensive view of the topographical features of the country.

As a commentary on the possibilities of use of aircraft for work of this kind we quote the following from a letter sent to the Air Board of Canada by Dr. Wallace, Commissioner for Northern Manitoba:—

"More than anything I had previously imagined, this trip impressed me with the future of the Air Service in northern territory. I obtained a grasp of the topography and water system in the Saskatchewan River Valley that I had not had any clear conception of. I have had considerable experience in mapping territory from the canoe, and feel satisfied and more than ever impressed with the conviction that the only way in which northern territory can be mapped is by the camera from the air."

In connection with this flight, we cannot refrain from quoting certain passages from the report sent by Lt.-Col. Stevenson, District Forest Inspector for Manitoba, to the Director of Forestry, Ottawa:—

"From my observations I am thoroughly convinced that flying boats are very far ahead of our present method of patrols. We could always see from 30 to 50 miles on either side of the 'plane, and it would be no difficulty to locate smoke at this distance. When you compare this with a canoe travelling up a river with high banks, where it is impossible to see more than 100 yards in either direction, and where the patrol would be unable to notice smoke unless it were driven down over him, the advantage is entirely on the side of the 'plane. By reading the diaries of the fire rangers, I find that in a great many instances, even though they see smoke, they spend days in locating the fire, and I am convinced that half of the fires which occur are never located or reported. On the other hand, the aeroplane is able to fly directly to the scene of the smoke and land on a nearby lake. We have already proved this conclusively, as we have observed smoke, located the fire, taken men into the fire district and extinguished the fire in five cases already, east of Lake Winnipeg."

"I have discussed the use of 'planes very fully with the three District Fire Rangers, and they agree with me that one seaplane of the F.3 type located at Norway House and one at The Pas, in addition to the main base at Victoria Beach, would be able to do all the work at present done by ground patrol in these districts, and do it a hundred times more efficiently."

"I believe that next year, provided we can be supplied with the machines, it would be possible to do away entirely with the ground men and canoes, keeping the District Fire Rangers, and possibly two men, who would make trips with the machines and take charge of the fire fighting crews in the event of fire. In this way we could fight two or three fires in each district."

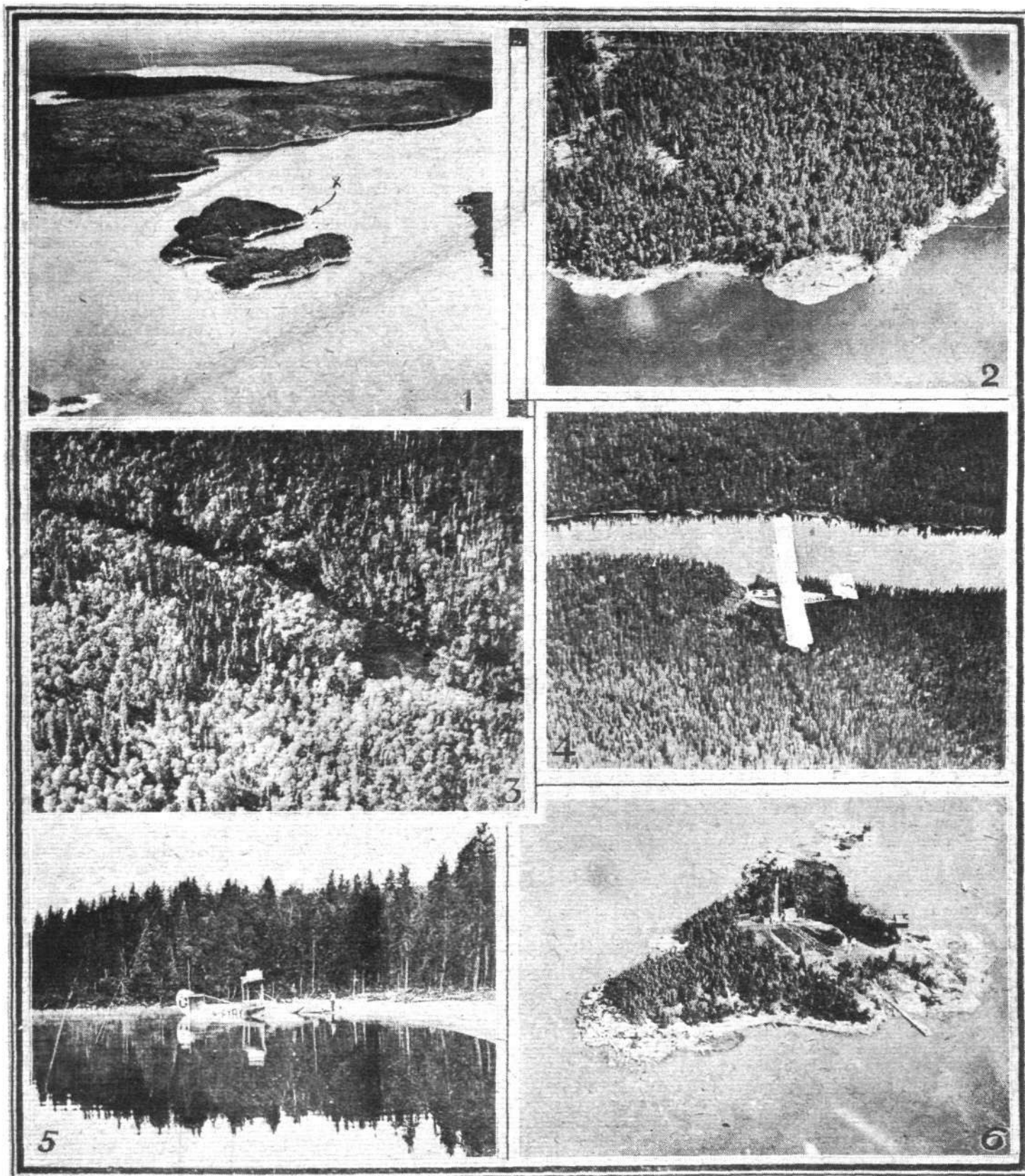
"If it were possible I should like to extend the work at once. I am thoroughly convinced that patrol with canoes is obsolete, and also convinced that it will be possible to do the work more efficiently with aircraft and at considerably less cost than our present methods."

Reconnaissance of Flooded Areas.—On the occasion of the above-mentioned flight of 1,000 miles, advantage was taken of an opportunity to use seaplanes for reconnaissance and

survey of flooded areas in connection with land drainage and reclamation projects. Mr. G. F. Horsey, Hydraulic Engineer of the Reclamation Service, was engaged on a survey of the Carrot River Triangle district for a proposed drainage project involving the reclamation of approximately 900,000 acres of land. Having experienced very great difficulty in conducting his survey on foot, owing to the floods and swamps, Mr. Horsey decided to give the seaplane a trial. A special flight was accordingly made over the Carrot River Triangle district,

with Mr. Horsey on board. In his report to the Director of the Reclamation Service, Ottawa, Mr. Horsey wrote, among other things:—

"Through Dr. Wallace, Commissioner of Northern Manitoba, and Lt.-Col. Stevenson, I met the Air Board's Station Superintendent, Major Hobbs, who kindly consented to stop over a day and take me over the Triangle in his plane. We started from The Pas at 6 p.m. and returned at 8 p.m., spending two hours in the air and covering approximately 120



AERIAL "OBLIQUE" PHOTOGRAPHS, ILLUSTRATING FOREST RECONNAISSANCE, TIMBER CRUISING AND FIRE PROTECTION AS CARRIED OUT BY SEAPLANE IN CANADA : 1. Distant view of forest and lake area ; altitude 3,000 ft. Note point of land x. 2. Nearer view of point of land shown at x in 1 ; altitude 1,000 ft. 3. "Close-up" view of same area, showing actual timber types ; altitude 200 ft. 4. A flying boat on patrol, as seen from another machine flying above it. 5. Landing supplies for fire fighters on a lake near the scene of the fire. 6. Comparison of the old and the new way. The former is illustrated in the photograph by the look-out tower at Norway House, Lake Winnipeg, photographed from the seaplane which provides the new way.

miles, going nearly due west from The Pas, crossing Saskeram Lake and then following the Saskatchewan River to within about 20 or 25 miles of the Sipanok Channel, and flying at a height of from 1,000 to 4,000 ft. We were only able in two hours to cover a part of the interior.

"I cannot speak too highly of the benefit derived from a flight of this kind in connection with survey work on a project of the magnitude of the proposed Carrot River Triangle Drainage Project, involving as it does an area of from 800,000 to 900,000 acres, a large part of which is practically inaccessible in the summer season on account of the flooded condition of the interior. Much of this district is unsurveyed, and very little information of the topographical features of this section is obtainable without running a traverse survey. From the air you can see the various drainage channels in the interior quite distinctly, and information of this kind would prove of great value in determining to a large extent where it would be necessary to run our interior traverse lines and where lines would not be necessary, thereby saving time and money. Information regarding the timber in the interior could also be obtained.

"From my personal experience I feel confident that I obtained more general information of the area covered in the two hours' flight that I made in the air than I could have learned in a month's trip on foot in the late fall or winter when it is only possible to travel in this section."

Geodetic Survey in British Columbia.—During the summer of last year Mr. H. F. Lambart, Engineer of the Geodetic Survey Branch, was engaged upon establishing a preliminary triangulation scheme in British Columbia, and with the assistance of seaplanes from the Vancouver Air Station, the work was very greatly facilitated, a considerable saving both in time and expense being effected. In Geodetic Survey operations, one of the main problems is to find means of viewing the country so as to enable the engineer to determine and identify the position of the points constituting his triangulation scheme. To minimise as far as possible the fatigue and loss of time in long excursions over bad country or through almost impassable woods, extension ladders and temporarily erected wooden towers have to be resorted to. One of these, at Norway House, is shown in one of the accompanying illustrations. By making use of seaplanes, observations could be made rapidly and easily at any point desired, and thus the work was greatly facilitated. We can do no better than note the assistance rendered by seaplanes in the words of Mr. Lambart in a report to the Air Board of Canada:—"Now, through the introduction of the aeroplane [Should have been seaplane, strictly speaking—ED., FLIGHT], "for the first time as far as I know," Mr. Lambart says, "into this class of survey work, we have met with signal success, and established a record not hitherto approached by this Survey.

"It is very difficult indeed to give any comparisons that are reliable, as conditions differ so greatly, but we have arrived at some rough, and which we think conservative, conclusions as follows:—Firstly, that the ground covered this summer (300 miles) in the short period from June 1 to the end of August, was three times more than could have been covered by any of the previously known methods; and secondly, that the saving in expense as a direct result of the assistance rendered by aircraft was over twelve thousand dollars.

"Although it is possible the soundness of these conclusions may be disputed, there is, however, no doubt whatever left in my mind as to the certainty that this Survey has secured through one of the most rugged portions of the Dominion a primary system of triangulation which would be difficult to improve without increasing the cost of the ultimate survey beyond all reason.

"The greatest benefit has been derived from the reconnaissance flights, giving a clear and distinct view of the whole country and making it possible to secure a careful and detailed inspection of the points selected for the stations of the scheme. The information so obtained can hardly be over-estimated, and is not realised until the actual ground work on the stations is taken in hand.

"We are earnestly looking forward to a vigorous pursuance of this work next summer with a still greater use of aircraft, and feel confident of being able to turn out final results of the Survey, for the use of the surveyor and engineer in general, years in advance of what would otherwise be possible."

Observation and Photographic Reconnaissance of Mosquito-breeding Areas.—The valuable assistance of seaplanes in materially aiding investigations into the mosquito pest of low-lying swampy areas was strikingly demonstrated in operations carried out from the Vancouver Air Station over sections of the Lower Fraser Valley, B.C. Following are

extracts of what Mr. Eric Hearle, Entomologist of the Entomological Branch of the Department of Agriculture, said in a report submitted to the Air Board:—

"I would like to state my appreciation of the courtesy and co-operation that the officials of the Air Board have shown in connection with our investigations of mosquito breeding areas in B.C., and I may say that nothing has helped us to a satisfactory conclusion of our investigations in the Fraser Valley, so much as the observation flights and aerial photographs undertaken by the Air Board.

"For years there have been demands for an investigation into the mosquito pest of the Fraser Valley, B.C. During bad seasons all outdoor activities have been seriously affected, lumber camps have been obliged to close down, small fruit picking has been much hampered, and great material loss has been incurred through the drop in milk production in the dairy sections. Cases are even on record where cattle have actually succumbed through the attacks of mosquitoes.

"For two years efforts were made by various surveys (by auto., on foot, and by boat) to locate and define the position and extent of the various breeding areas (which often ran to many thousand acres). It was found impossible to obtain sufficient data over such an extensive territory, and the value of aerial surveys in this connection presented itself. The results obtained during the present season have justified our expectations, and I am of the conclusion that this is the most feasible method of covering such an extensive territory, where detailed maps are not available. From the observation flights and the aerial photographs we have been able to more or less accurately map the important breeding areas, showing the extent of flooding at 17 ft. 6 ins., and the more extensive flooding at levels where conditions suitable for a serious outbreak occur.

"The field notes obtained during the flights, together with the photographs, have enabled us to obtain a comprehensive idea of the Fraser Valley situation, and have placed us in a position to make concrete recommendations dealing with the control of the pest."

Geological Reconnaissance by Air in Northern Ontario.—Another example of the useful work done by seaplanes in Canada is provided by the account of a seaplane flight made by a machine belonging to the Air Board Mobile Unit at Sioux Lookout, Northern Ontario. This flight was made to assist in the geological examination of that district by the Mines Department of the Government of Ontario. Prof. E. L. Bruce, of the Dept. of Mineralogy, was the geologist taken up as observer on this occasion. The nature and importance of the geological information which he was able to obtain from the air in a few hours' flying are set out in a report by Prof. Bruce, from which the following passages are quoted:—

"The district lying north of Sioux Lookout is a network of lakes, of which the southern ones drain to Lake Winnipeg, the northern to the Albany River and James Bay. From the railway to Lake St. Joseph required for our survey party, with outfit, four days of travel. By seaplane the distance was made in a little over one hour. . . . Most of that district between the railway and Lake St. Joseph is practically unmapped, and many large lakes are not shown at all or very imperfectly. Of those shown on Map No. 9A of the Geological Survey of Canada, Green Grass Lake is one of the largest. Its outline is quite different from that on the map. Long Lake lies a considerable distance to the east of Green Grass Lake. The flight did not take us over this, but it was recognisable to the eastward of our course. It is narrower than mapped, and the bend in the middle of the lake is more pronounced than shown. The lakes not shown at all are almost numberless, and vary in size from mere ponds to lakes larger than Green Grass Lake. . . .

"Geologically some additions to the previous knowledge of the districts were made, even by this brief aerial examination. On map No. 9A of the Geological Survey the district about Green Grass Lake is left uncoloured, indicating lack of geological information. This solid rock is undoubtedly granite. Ridges of that rock were easily recognisable for considerable distances in all directions from the lake during our flight over that part of the area.

"These are briefly the observations made during the flight, and they seem to indicate that much time and labour could be saved by using a seaplane for a few days in examining an area such as that about Lake St. Joseph. It would be possible in this way to eliminate from ordinary detailed geological examination the areas of granite which are not important economically, and the areas where the solid rocks are covered by heavy glacial debris. This would leave the geologist more time for the exploration of the areas of promising rocks, and so make it possible to cover larger areas in the field season."

Photographic Surveys of St. Croix River, N.B.—Vertical and oblique photographs of portions of the St Croix River, which forms the International Boundary between the Province of New Brunswick and the State of Maine, were undertaken by seaplane from the Halifax Air Station on behalf of the International Boundary Commission. Sections of the river in the vicinity of St. Stephen, Oak Bay and Milltown were covered, and proved of value to the Commission, as they reproduced exactly all natural features, and supplemented the surveys already made by their engineers.

We could mention a number of other examples of the way in which Canada is making use of the seaplane, but sufficient has, we think, been said to indicate that not only the Canadian

Air Board, but a very great number of other Canadian Government Departments are fully alive to its possibilities. Comparison with the attitude towards the seaplane at home leaves one with a feeling that all is not well. We willingly grant that Canada has facilities and possibilities which do not exist in England, but a very great deal might be done towards a greater utilisation of the seaplane than is the case, even if the purposes for which it was used were somewhat different. But that is another story, to which we may return at a later date. In the meantime, we congratulate Canada on its energetic Air Board, and on its other progressive and wide-awake Government departments. They have provided us with an excellent example to follow.

A NEW GAS FOR AIRSHIPS

ACCORDING to our American contemporary *Aerial Age*, the new gas for airships, "Currenium," which has been discovered was demonstrated recently at Los Angeles. This gas possesses a lift about equal to hydrogen, and has non-inflammable and non-explosive qualities which should render it a valuable asset in connection with airship work. It is a manufactured gas, and can be produced in any quantity by an electrolytic process at an estimated cost of \$30 per thousand cubic feet, \$100 less than it costs to produce helium.

"Currenium" has been developed by Dr. Edward Curran, head of the research department of the International Transportation Co., of Los Angeles. It is the result of several years of research work on the part of Dr. Curran, who produced the gas successfully in 1918, since when he has continued the development of the process, and has succeeded in producing a 100 per cent. purity gas. As a result a new company has been formed known as "Airway Load Carriers," a combination of the International Co. and the Hall Aeroplane Co.,

and both the new gas and the Hall "Helicoidal" propellers will be put to practical use.

The new gas weighs 6.2 lbs. per 1,000 cubic ft. at a barometric pressure of 30 ins. and a temperature of 40° F. Its lift under these conditions is, therefore, 73.8 lbs. per cubic ft. In the demonstration, previously referred to, made by Dr. Curran a flame was passed through the gas and an electric spark inserted in it without occasioning fire or explosion. The purity was allowed to drop below 80 per cent., with similar results. A small elongated balloon was filled with "Currenium" of low purity, and a flame applied to the end of the balloon. The gas did not explode, and the balloon was only burned where it came into contact with the flame—the gas escaping through the hole thus made. Under certain conditions of extremely low purity—which would never be allowed to exist in aircraft—it was found possible to unite "Currenium" with oxygen and air, and cause a flame, but without explosion.

THE LONDON-CONTINENTAL SERVICES

FLIGHTS BETWEEN MAY 7 AND May 13, INCLUSIVE

Route†	No. of flights*	No. of passengers	No. of flights carrying		No. of journeys completed†	Average flying time	Fastest time made by	Type and (in brackets) Number of each type flying
			Mails	Goods				
Croydon-Paris ...	60	104	16	42	58	h. m. 2 27	Breguet F-CMAC (1h. 43m.)	B. (3), D.H. 4 (2), D.H. 9 (1), D.H. 18 (3), D.H. 34 (5), G. (8), H.P. (3), Sp. (6).
Paris-Croydon ...	62	145	8	38	62	2 43	D.H. 4a G-EAWH (2h. 2m.)	B. (4), D.H. 4 (2), D.H. 9 (1), D.H. 18 (3), D.H. 34 (5), G. (8), H.P. (2), Sp. (7).
Croydon-Rotterdam-Amsterdam.	6	1	6	6	6	2 33	Fokker H-NABQ (2h. 23m.)	F. (3).
Amsterdam-Rotterdam-Croydon.	7	4	6	6	7	3 11	Fokker H-NABM (2h. 21m.)	F. (5).
Totals for week ...	135	254	36	92	133			

Note.—Four trips to Rotterdam, and six trips from Rotterdam.

* Not including "private" flights.

† Including certain journeys when stops were made *en route*.

‡ Including certain diverted journeys.

Av. = Avro. B. = Breguet. Br. = Bristol. Bt. = B.A.T. D.H.4 = De Havilland 4, D.H.9 (etc.).
F. = Fokker. Fa. = Farman F.50. G. = Goliath Farman. H.P. = Handley Page. M. = Martinsyde. N. = Nieuport.
P. = Potez. R. = Rumpler. Sa. = Salmson. Se. = S.E.5. Sp. = Spad. V. = Vickers Vimy. W. = Westland.

The following is a list of firms running services between London and Paris, Brussels, etc., etc.:—Co. des Grandes Expresses Aériennes; Daimler Hire, Ltd.; Handley Page Transport, Ltd.; Instone Air Line; Koninklijke Luchtvaart Maatschappij; Messageries Aériennes; Syndicat National pour l'Étude des Transports Aériens; Co. Transaérienne.

Incidental Flying.—Five D.H. 9's were on test for the Aircraft Disposal Co., Capt. Stocken taking four, and Maj. Foot one. During the week numerous flights were made between Croydon-Brussels—mainly in connection with the Royal visit to Belgium—by the Aircraft Disposal Co., De Havilland Aircraft Co., Instone Air Line and Surrey Flying Services.

Cunard Enterprise

THE Cunard Company have arranged with the Compagnie Aérienne Française, as from June 1, for fast aeroplanes to connect with the arrival and departure of the giant Cunarders calling at Cherbourg. By using this air service the passengers will save at least five hours in the journey to and from Paris.

For passengers arriving at the French port from New York a motor-car will be waiting and will proceed to the aerodrome, from which they will fly direct to the capital. Outward-bound passengers from Paris will be able to arrange for an aerodrome motor-car to call for them at their hotel. It is possible to take a certain amount of baggage.

LONDON TERMINAL AERODROME

Monday Evening, May 15.

HAVING regard to the number of machines now employed on the London-Paris airway, there is for the time being plenty of accommodation for passengers, and until the rush which is anticipated materialises, there need be no fear of the public being disappointed should they be last-minute passengers. Competition is keen, and what some of those who are watching the situation closely believe will happen is, that the French air-lines will suddenly decide to "cut" the fares again, and so create a new air transport crisis.

The Goliath belonging to the Grands Express which came to grief in an encounter with the wall of one of the sheds, and had the fore part of the cabin demolished, has now been neatly patched. The cabin has been made up square with a piece of three-ply, giving the machine a square nose. In this state it is to be flown back to Paris for proper repairs, and there is comment on the 'drome as to what will be the duration of the journey with the added resistance of this square nose.

The Marconi Company have now got into their new office, and have installed a wireless set for listening-in to hear that all is going well with the airway wireless installations both in the machines and on the ground.

Since the daily papers have begun their great "shout" about wireless in the home the Marconi officials on the aerodrome have been having a busy time answering enquiries from members of the aerodrome staffs as to the possibility of fitting up home wireless sets. Lest enthusiasts should be led away by statements that, with any wireless listening-in sets bought for £5, they would be able to hear wireless conversations on the airway, I hasten to pass on the information, obtained from one of the Marconi people, that such a set would cost in the neighbourhood of £30.

"Air Express" Sheds a Wheel

MR. BRADLY, while piloting one of the Instone D.H.34's on a return trip from Paris on Thursday, had the misfortune to shed a wheel on alighting at Croydon. He made quite a good landing, but immediately after he touched the ground one wheel came off and the machine immediately stood on her nose.

Mr. Bradley was unhurt, and there were no passengers on board. The engine, too, Mr. Hall informs me, is practically undamaged, but is to be overhauled as a precautionary measure. Owing to the construction of the 34's, with removable noses, it will only be necessary to put in a new nose and engine to have the machine on the service again.

The Surrey Flying Services, and the De Havilland Aircraft Company, have been reaping a harvest during the King's visit to Belgium. The various newspapers have been competing with one another in obtaining up-to-the-minute photographs of the visit, and aeroplanes belonging to these two companies have been flying between London and Brussels, or some part of the battlefields, every day for the past week. Mr. Muir, of the Surrey Flying Services, has been using a Martinsyde

loaned to him by the Aircraft Disposal Company, while the De Havilland Company have been using their three-seater "air-taxi" 9's. On Saturday the Instone D.H.4 flew over to St. Inglevert to pick up photographs, and, flying back to Croydon with these in the late afternoon, continued on to Manchester with photographs for a northern paper.

Signalling the Approach of Incoming Machines

THE old electric bell which was, at one time, used to announce the arrival of machines has been replaced by a powerful klaxon horn, also operated electrically. Now a system of signalling has been devised to avoid confusion as to what aeroplane is arriving, and thus preventing all the officials and mechanics of all the firms from immediately rushing out of their offices and sheds to see what machine it is. In future, after the first long warning signal on the klaxon, there will be a pause and then the initial letter of the company to whom the approaching machine belongs will be given in the Morse code.

On Tuesday next the two new Handley Page W.8B's are to be officially christened by the new Director of Civil Aviation, Maj.-Gen. Sir W. S. Brancker. I understand that on this occasion we shall see what these machines can do in the way of passenger carrying. Both machines have already been on the service, and the pilots speak highly of them. Certainly they are the most comfortably equipped "air expresses" from the passengers' point of view which have, as yet, been placed on the London-Paris airway.

The Vickers "Vulcan" has not yet been delivered at Croydon. I understand that her designer is not quite satisfied with the machine yet, as it is not lifting its full load by something like 200 lbs. Slight alterations are being made which will put this right. The Instone Air Line are anxiously awaiting this machine, for, with the new regular service to Brussels, they will want all the machines they can get hold of to carry out their scheduled services. Several of the Instone pilots have been flying round on the Hispano-Westland during the week, in order to have this put on their licences.

Workmen are still busily engaged on the various petrol systems, some of which, though in working order, still lack final refinements.

The fine weather over the week-end gave a fillip to the joy-ride concerns, and things began to look up. Capt. Muir was busy on Saturday and Sunday taking up numerous passengers in the Surrey Flying Services Avro.

The Services to Amsterdam and Brussels

THE K.L.M. began their double service between Croydon and Amsterdam on Monday, monoplanes leaving both places at 10 a.m. and 2 p.m. The daily load of newspapers to Amsterdam, and Rotterdam is steadily increasing, and now includes copies of most of the London morning dailies.

The Instone Air Line also commenced the regular running of their new Brussels service, the air express leaving Croydon at 11 a.m. and returning from Brussels at 4 p.m. His Majesty

Inauguration of London-Brussels Air Service : On Monday of last week the Instone Air Line inaugurated their service between London and Brussels by sending one of the new Napier-engined D.H.34 biplanes to Brussels and back, piloted by Capt. Barnard. The occasion was recorded in last week's issue of FLIGHT. Our photograph shows the machine just before the start, Capt. the Hon. F. E. Guest being seen in conversation with Sir Samuel Instone, while, in the foreground, with his back to the camera, is Sir Frederick Sykes, late Controller-General of Civil Aviation.



the King of the Belgians had signified his intention of seeing the aeroplane start on its return journey from Brussels.

When the 12.45 p.m. Daimler Airways machine left the air-station for Paris on Monday, piloted by Mr. Robertson, it was noticed by those on the ground who were watching it circle round over the aerodrome before heading for Lympe that a portion of the under-carriage had come loose, and that one wheel was hanging down.

Star shells were fired in the hope of attracting the pilot's attention. This was unsuccessful, but the wireless operators got him on the 'phone and told him what had happened. It was arranged that, as there were no passengers on board the machine, it should be diverted to Stag Lane, where whatever damage was done on landing could best be repaired. So Mr. Robertson turned round and, passing over the air station, flew to Stag Lane, alighting there safely despite his defective under-carriage.

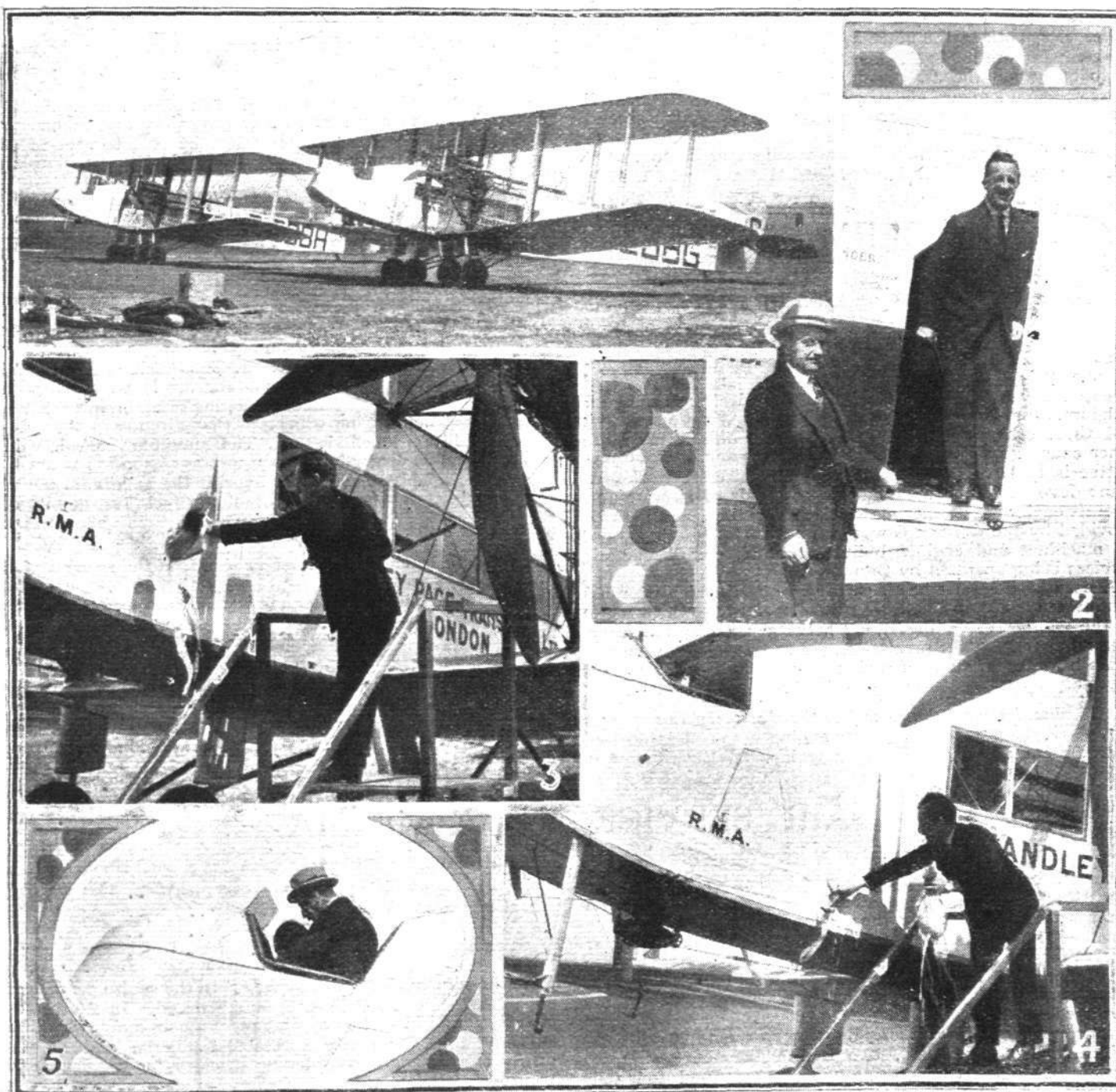
(Continued)

Maj.-Gen. Sir Sefton Brancker made his first public appearance as Director of Civil Aviation at the Waddon Aerodrome on May 16, where he christened two of the new Handley Page W.8 B's, which are being put on the London-Paris service. The W. 8 B was fully described and illustrated in

our issue of April 27, 1922. The D. of C.A. broke a bottle of champagne over each machine in turn, and pulled away the fabric strips which concealed the names of the machines, R.M.A. "Princess Mary" and R.M.A. "Prince George." In a short speech Sir Sefton Brancker stated that he had in the past been criticising the Air Ministry's aviation policy, and that now, with his appointment to the post of Director of Civil Aviation, it had become his turn to be criticised. He said he hoped he would be, as he would always welcome criticism. He pointed out that, as far as the present financial year was concerned, the policy in regard to Civil Aviation was already settled upon, but that for next year he hoped to frame a policy that would be the best possible for Civil Aviation.

Gen. Brancker also stated that he had always held the view that operational firms should not be constructing firms. He still held that view, but he thought that Handley Page was the exception which proved the rule, and said he was glad to be able to make his first public appearance in connection with the oldest existing air line.

The R.M.A. "Princess Mary" then left for Paris with nine passengers on board, while a party of 15 passengers, in addition to pilot and engineer, was taken up for a flight in the R.M.A. "Prince George."



"LAUNCHING" TWO HANDLEY PAGE W.8 B BIPLANES: On May 16 two of the new W.8 B's to be put on the London-Paris air service were christened by Major-General Sir Sefton Brancker, the new Director of Civil Aviation. The names of the two machines are "Princess Mary" and "Prince George." Our photographs show: 1. The two machines before the christening. 2. Mr. Handley Page and, in the doorway of the machine, the D. of C.A. 3. Sir Sefton Brancker breaks a bottle of champagne on the first machine, and (4) tears off the strip which covers the name. In 5 Lieut.-Col. Barrett-Lennard is seen explaining some of the details to Sir Sefton Brancker.

QUEENSLAND AVIATION GOING AHEAD

Charleville-Cloncurry Air Service Subsidised

ALTHOUGH, generally speaking, the progress made with aviation in Australia has not been so great as might have been expected, there are now signs that things are beginning to improve, and one company at least, the Queensland and Northern Territory Aerial Services, has succeeded in obtaining a Government subsidy for an air mail and passenger service between the railhead towns of Charleville and Cloncurry. The contract with the Federal Government covers one year, and calls for one journey per week each way. The subsidy agreed to is 4s. per mile, and it is proposed to make the following charges for passengers: 9d. per mile for the whole journey of 580 miles, 10d. per mile over 250 miles, and 11d. per mile under 250 miles. As regards the carriage of mails, the only stipulation made by the Federal Government is that each machine shall carry up to 100 lbs. of mails, and that a proper time-table shall be adhered to.

It is proposed to make four landings on each journey, partly in order to reduce the amount of petrol that must be carried, and partly to increase the general usefulness of the service. Even with the four intermediate landings it is expected to cover the whole journey of 580 miles in one day. There should, therefore, be ample support forthcoming for the service, both in the matter of mails and passengers, and the company are hoping to keep their running costs down so as to be within the 4s. per mile subsidy. The revenue of passengers and goods will thus be almost clear profit. If these expectations are realised, the company intend to extend the services to other parts, but in the meantime the Charleville-Cloncurry route will form an excellent beginning.

The company was formed by Lieut. Hudson Fysh, D.F.C.,

Lieut. P. J. McGinnis, D.F.C., D.C.M., Mr. Fergus McMaster and Mr. A. N. Templeton, who backed their faith in aviation to the extent of £4,000. Since then the company has been successfully floated, and has purchased one Avro five-seater triplane, one three-seater Avro biplane and one two-seater B.E.2E. The latter two machines have flown 26,500 miles, and have carried 1,140 passengers without a single injury to passengers or pilots.

It is expected to begin the new service in September, and two Vickers "Vulcans," Rolls-Royce "Eagle" engines, are to be put on the service, with a D.H.4 as an auxiliary machine. The two pilots will be Lieuts. Fysh and McGinnis, while a third pilot is being secured in England. The latter will be familiar with the Vickers machines, and will be able to initiate the two older pilots into the handling of them. We should imagine that the Vickers "Vulcans" will prove well-nigh ideal machines for this work. As they will not have to compete against very fast railway expresses their speed should be ample, while their landing speed is so low that it should be possible to "put them down" almost anywhere. Furthermore, they should be very economical to run, as they carry a considerable useful load per horsepower expended. Altogether it appears to us that the new air line "down under" gives every promise of being a success, and as the nature of the country over which the line will run is, we understand, in the nature of open downs, there should be no mishaps of any sort to mar the safety and regularity of the service. We hope later on to be able to give more detailed information of this service when it gets going in September.

GERMANY'S POSITION IN THE AIR

Regulations in Force Since May 5, 1922

As from May 5, 1922, the Inter-Allied Aircraft Commission in Germany ceased to exist, and in its stead a "Committee of Guarantees" has been appointed to ensure that the regulations framed to define Germany's position in the air are followed. This "Committee of Guarantees" is composed of representatives of Great Britain, France, Italy, Japan and Belgium. England is represented by one Air Commodore and three other officers, France by three officers, and the other countries mentioned by two officers each. The Committee is to have the right to visit any aircraft works, or plant devoted to the manufacture or repair of aircraft and aircraft engines and other material, at any time, and is to be provided by the German Government with full particulars of all machines and engines built and of all commercial air services being operated by German firms.

A list of regulations has been drawn up, of which we must confine ourselves to publishing details of those which relate to the manner of distinguishing between military and commercial aircraft. The regulations are to be revised every two years in order to allow of such adjustments as are rendered necessary by the general progress in the science of flying.

Regulations Relating to Heavier-than-Air Craft

1. A single-seater with greater engine power than 60 h.p. is to be considered a military machine. 2. Every aircraft

which is capable of flying without a pilot is considered a military machine. 3. Every aircraft which is armoured, or which has any provision for mounting guns, bombs, etc., is considered a military machine. 4. The "ceiling" with full load of any German commercial aircraft is not to exceed 4,000 metres (13,100 ft.), and the fitting of an aircraft with a high-compression engine will place that aircraft in the category of military machines. 5. The maximum speed, with full load and at a height of 2,000 metres (6,500 ft.) is not to exceed 170 km. (105 miles) per hour at the maximum power of the engine. 6. The amount of oil and fuel (best quality of aviation petrol) carried on board must not exceed $\frac{800 \times 170}{V}$

grammes for each horse power (where V is the speed at full power and 2,000 metres). 7. Every aircraft whose useful load, including pilot, engineer and instruments, exceeds 600 kg. (1,320 lbs.) is considered a military machine if the maximum conditions of 4, 5 and 6 are attained.

Lighter-than-Air Craft

Airships whose volume exceeds the following figures are considered as war material, and are "verboten":—Rigid airships, 30,000 cu. m. (1,060,000 cu. ft.); semi-rigid airships, 25,000 cu. m. (884,000 cu. ft.); non-rigid airships, 20,000 cu. m. (760,000 cu. ft.).

AIR SERVICE IN COLOMBIA

Developments in 1921—Facts and Figures

COLOMBIA is considered to be ahead of other South American countries in Civil aviation, and the latest developments confirm this view. Since the beginning of September, the German-Colombian Aviation Company established a regular service for mail and passengers along the following routes: Barranquilla-Girardot-Neiva and Barranquilla-Cartagena. Other routes are under consideration. Five machines are employed in the River Magdalena, covering in 7 hours the distance which usually takes 9 days by steamer and rail.

During September last, two hydroplanes covered 4,956 miles in 41 flights, transporting 27 passengers and four tons of mails and parcels. In October, three machines covered 9,114 miles in 67 journeys with 57 passengers and 5½ tons of goods. In November, four machines accomplished 105 flights, travelling over 10,224 miles and carrying 126 passengers and just over 10 tons of goods. The figures for December were: 94 flights, distance covered 10,256 miles, 93 passengers and 9½ tons of goods.

Total flights (last four months of 1921)	307
Miles covered	34,550
Mail and parcels, tons	29½
Passengers	303

The above figures clearly show the high degree of prosperity of our Civil Aviation Service. In the routes mentioned not a single accident has been registered. In Manizales, Medellin, Cali and Pasto, Italian, French and Colombian aviators give frequently spectacular flights, and all the principal towns are considering schemes for regular aerial transport. Before the end of the year we expect to have a complete net of aerial routes. The great gold and platinum mines of the country will be able to save two or three weeks in the conveyance of their valuable metals to the coast.

The Government has a Military Aviation School under French tutors, and considerable progress has been already attained by the Colombian pilots.—*The Colombian Trade Review* (London), February, 1922.

Personals

Married

CHARLES THORNTON CLEAVER, M.C., D.F.C., late Capt. R.F.C., of 34, Hanover House, London, N.W., sixth son of the late Richard Stewart Cleaver, of Liverpool, was married on May 6, at Paris, Texas, to RUTH, only daughter of Mrs. J. F. McREYNOLDS and the late J. F. McReynolds, of Paris, Texas, U.S.A.

HAROLD JOHN SAKER, R.A.F., was married on May 4 at St. Mary's Church, Alverstoke, to STELLA, youngest daughter of the Rev. R. W. and Mrs. TOWNSON, 7, St. Mark's Road, Alverstoke.

To be Married

The engagement is announced between Major H. L. H. OWEN, A.F.C., late of the Dorsetshire Regiment and R.A.F., son of Mr. and Mrs. W. Haddon Owen, of Louth, Lincolnshire, and ANNA HARDY (OLIVE) DANIEL, elder daughter of Mrs. BARNETT, of Gribdal, North Berwick.

Death

THE death, we regret to record, is announced of Sir Walter Alexander Raleigh. Born in 1861, the son of Dr. Alexander Raleigh, an eminent Scottish Congregationalist divine, he was educated at University College, London, and at King's College, Cambridge, and was knighted in 1911. Sir Walter had in hand the task, entrusted to him by the Air Ministry, of compiling the official history of the work in the air during

the late Great War. We learn that since 1919 he had been at work on the first volume, which was passed for press only a few days ago; and with a view to a second a flight was arranged for him to the chief scenes of air warfare in the Near and Middle East. He left for Egypt in March last, and visited the "Valley of Death," Wadi Fura, and other places. While flying on to Mesopotamia across the Syrian desert, one of three 'planes conveying his party broke down, and a halt of nearly four days had to be made on the open sand under unfavourable weather conditions. On arrival at Baghdad, too late to go on to Basra, Raleigh felt unwell; but after treatment, he flew on to Mosul, fever setting in on the way. He was treated again there and advised to await recovery; but, fearing the coming heat, and unwilling to miss the steamer arranged for him, he insisted on returning immediately to Baghdad and Egypt. He found the journey trying, and after landing in England, had a prolonged attack of fever. Typhoid was diagnosed, and peritonitis supervened. He was operated upon last week, but his case was found to be desperate; and, though he rallied, the end came in the early morning of May 13. After his appointment as historian of the Air Force his professorial lectures were better than ever. He found a new stimulus in lecturing to crowds of undergraduates who had seen active service in all parts of the world, and of whom some had taken part in what he hoped to describe.

ROYAL AERONAUTICAL SOCIETY



Students' Section.—The date of the Students' visit to the National Physical Laboratory has been changed from June 3 to June 10. Students desiring to attend are reminded that they should meet at 9.15 a.m. for special tickets at the Booking Office, Waterloo Station (L.S.W.R.).

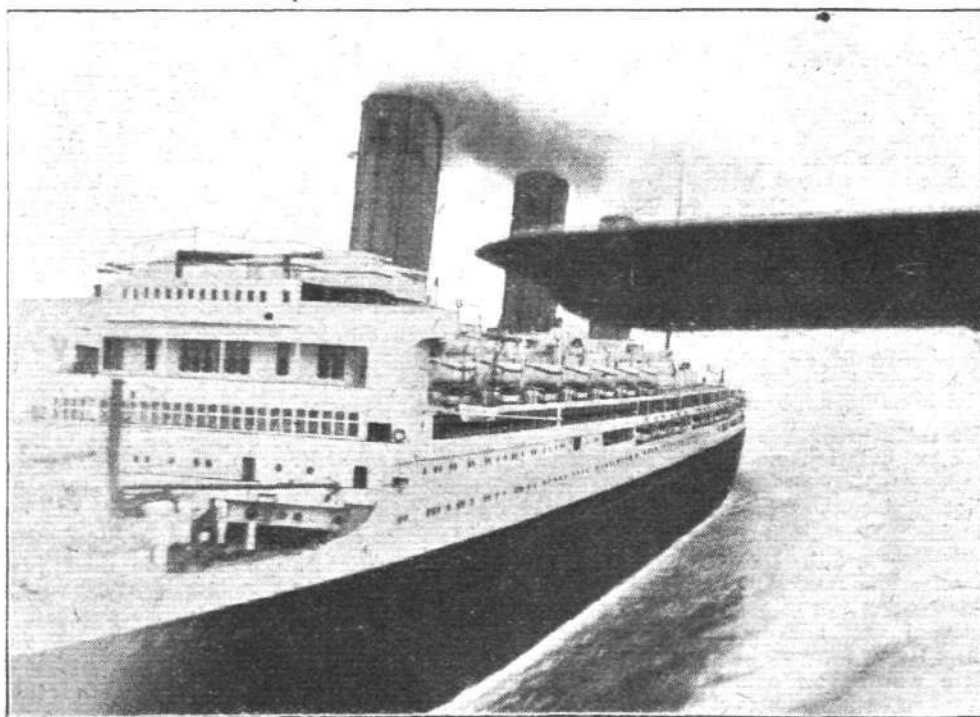
The next Students' visit will be to the Royal Aircraft Establishment, South Farnborough, on May 31. Meet at 8.40 a.m. for special tickets at Booking Office, Waterloo Station (L.S.W.R.) for 9 a.m. train.

W. LOCKWOOD MARSH,
Secretary

Second Mishap to Portuguese Aviators

It is with great regret that we have to record this week a second mishap to the two Portuguese aviators, Commander Sacadura-Cabral and Capt. Gago Coutinho, who were attempting a flight from Lisbon to Rio. Their first machine, a Fairey long-distance seaplane with Rolls-Royce "Eagle" engine, came to grief in alighting in a rough sea near St. Paul's Rocks. A second machine was sent out to Fernando Noronha, and the two aviators started off from there for St. Paul's Rocks (in order, of course, to cover the whole distance in flight), where they intended to turn and fly back to Fernando Noronha and on to the Brazilian coast. It appears that they were forced down by engine trouble, fortunately being found and picked up by the British steamer, "Paris City." Both aviators are stated to be safe, but the machine is wrecked. After their magnificent performance this is very hard luck, and everyone will sympathise with the two plucky aviators.

A Maiden Voyage: Photograph, taken from a Supermarine flying boat, of the "Majestic" leaving Southampton for New York on May 10. This was the first voyage of the vessel since she was taken over from the German authorities.



R.A.F. MEMORIAL FUND

A MEETING of the Executive Committee of the Fund was held at No. 7, Iddesleigh House, on May 10, Lord Hugh Cecil in the Chair. Amongst others present were Lady Leighton, Dame Helen Gwynne-Vaughan, Mrs. Barrington-Kennett, Sir Charles McLeod, Mr. H. E. Perrin, and Mr. W. S. Field.

It was reported that the Architect, Sir Reginald Blomfield, had placed a scale model of the War Memorial in the Architectural Room at the Royal Academy, where it would probably remain during the London season.

It was mentioned at the meeting that the Royal Air Force Pageant would probably be held at Hendon on Saturday, June 24 next.

The Secretary reported to the Committee that the Annual Report for 1921 had been issued during the month of March, and he read to the Committee a letter addressed to the Chairman by the Comptroller to H.R.H. The Duke of York, K.G.,

President of the Fund, thanking Lord Hugh Cecil for sending him a copy of the Report, and expressing H.R.H.'s keen appreciation of the work the Fund has done, and is doing.

The Hon. Mr. P. C. Larkin, the recently appointed High Commissioner for the Dominion of Canada, was unanimously appointed a Vice-President of the Fund.

At the conclusion of the meeting the Chairman read a communication received from Air Vice-Marshal Sir J. M. Salmond, K.C.B., conveying his resignation of his membership of the Executive Committee, and of the Chairmanship of the Vanbrugh Castle School Sub-Committee, by reason of the fact that he is under orders to proceed to India and Mesopotamia at the end of the present month. This communication was received with the keenest regret, and the Chairman was asked to convey to Sir John Salmond the high appreciation held of his excellent services to the Fund.



Reunion of Independent Force, R.A.F.

THE fourth annual Reunion Dinner of the Independent Force, Royal Air Force, will be held at the Hotel Cecil at 8 p.m. on Monday, June 19. Sir H. M. Trenchard, Chief of the Air Staff, who commanded the Independent Force in France, will preside.

Among those who have already notified their intention of being present are the Duke of York and General de Castelnau, who commanded the French Army of the East from whose area the Independent Force operated.

Tickets, 15s. each, can be obtained from the Honorary Secretary, Independent Air Force Dinner, Room A, 337E, Air Ministry, W.C. 2.

Dunkerque Officers' Dinner

THE fourth Annual Dinner for Officers who served in the Dunkerque Command of the Royal Naval Air Service and the Royal Air Force from 1914 to the Armistice will be held at the Hotel Cecil on Wednesday, June 28, 1922, at 7.30 p.m. for 8 p.m. The Chair will be taken by Lieut.-Col. F. K. McClean, A.F.C.

The tickets are £1 each, which sum should be forwarded with the application. Those who wish to be present should apply not later than June 24 to Treasurer, Dunkerque Dinner, Royal Aero Club, 3, Clifford Street, W. 1.

Gordon Shephard Memorial Prize Essay Awards

THE awards in the 1921 Competition for the Gordon Shephard Memorial Prize essay, the subject of which was "The probable Influence of Air Reconnaissance on Strategy and Tactics," are:—

1st Prize.—Flight Lieut. C. J. Mackay, M.C., D.F.C.

2nd Prize.—Sqdn. Ldr. Sir Norman R. A. D. Leslie, Bart., O.B.E.

The Competition, which is open to all R.A.F. officers, N.C.Os. and men, was established as a memorial to the late Brig.-Gen. G. S. Shephard, D.S.O., M.C., Royal Air Force.

9,000 Miles Over Unknown Country in Australia

IN connection with the aerial routes already started in Australia, the work of the Australian Controller of Civil Aviation, Col. H. Brinsmead, has been done in no half-hearted manner. He has recently completed a 9,000 miles aerial tour on the "Bristol" tourer provided for his use, and during the flight thousands of miles of practically unknown country have been traversed. This ranks as one of the finest flying achievements which has yet been recorded. To carry out this trip by any other than the aerial route would have been practically impossible. This flight must be added to the aeronautical feats already achieved by such notable Australians as Sir Ross Smith and Lieut. MacIntosh, and speaks well both for the Australian flying spirit and for the British design and workmanship embodied in the machine.

The Aviation Meeting at Le Bourget.

AN Aviation meeting is being held at le Bourget Aerodrome on May 25, 26, 27 and 28 by the French Society of Pilot Aviators. This Society is composed of pilots who obtained their certificate prior to 1914, and is known as the "Vielles Tigres." Its president is M. Léon Bathiat, who was at one time associated with M. Sanchez and produced the Bathiat-Sanchez biplanes. The meeting is to be an international one, and we understand that cross-country races will be flown to various cities. On the evening of May 27 there will be an exhibition of night-flying, and extensive arrangements are being made for dealing with the crowds which it is expected will visit le Bourget from Paris. Special

trains are to be run, and a frequent service of 'buses from Paris has been promised. At the moment of writing we are not aware of any British machines having been entered, but some of those which will normally be at le Bourget may take part in some of the competitions, if they can be spared from the more serious work of the air services. A great number of French constructors have promised to send machines and pilots, and it would be a pity if this country were not represented.

French Competition for Commercial Aeroplanes

FROM Paris it is reported that in 1923 a competition is to be held for commercial aeroplanes. It is stated that the French Under-Secretary of State for Air will offer a prize of one million francs, and possibly other bodies will offer prizes. At the moment, however, nothing definite is known as regards the rules, etc., nor has it been decided whether or not the competition is to be international.

M. Santos Dumont Returns to France

AFTER an absence of nearly seven years M. Santos Dumont, one of the pioneers of French aviation, has returned to France in time to participate in the Grand Prix (Balloons) of the French Aero Club. It may be recollected that M. Santos Dumont left France during the War, as a result of falling a victim to the spy craze of the early days of the War. Needless to say, the suspicions of ignorant country people were entirely unfounded, but M. Santos Dumont felt the implied insult very keenly, and at once returned to his native Brazil.

Three-engined Potez Tested.

THE three-engined Henry Potez biplane exhibited at the last Paris Aero Show has now been tested. Flown by the well-known pilot Labouchere—and carrying a useful load of 1,550 lbs., the machine got off with only two of its three engines running. The full useful load is 2,200 lbs., and it is not known how much fuel was carried on the test flight. Nevertheless, there is little doubt that the machine will be able to fly level on two of its engines, even with full load.

Levasseur Sports Model Tested

THE very original sporting biplane exhibited by Pierre Levasseur at the last Paris Aero Show has now been tested. This machine was described in detail in FLIGHT of December 8, 1921. It is a side-by-side two-seater, and is fitted with a 180 h.p. Hispano-Suiza engine. Piloted by M. Henri Pitot, the machine reached a height of about 2,000 ft., and was kept flying at that height for about 20 minutes. It is stated that the pilot was very satisfied with its behaviour.

Entries for French Gliding Competition

IT appears that there will be a fair number of entries for the French gliding competition which, as recorded in FLIGHT of May 11, is to take place at Puy-de-Combrasse, Clermont-Ferrand, from August 6 to August 20. Already 16 machines have been entered, and it is expected that as many more will be entered in time for the competition. The machines will be numbered according to order of entry, and will carry this number on their wings. The following are the entries:— 1, Morris Abbins. 2, Louis de Monge. 3, Louis de Monge. 4, Eric Nessler. 5, E. Dewoitine. 6, G. Beuchet. 7, E. Derivaux. 8, Lucien Coupet. 9, J. Gilbert. 10, Georges Groux. 11, J. Pimoule. 12, Max Massy. 13, Jules Deshayes. 14, 15 and 16, Francis Chardon. The last three machines represent Switzerland. At the moment no details of the machines are available.

THE ROYAL AIR FORCE

London Gazette, May 5, 1922

General Duties Branch

Flying Offr. B. Aukers, D.C.M., is restored to full pay from half-pay; April 25.

Stores Branch

Flying Offr. on probation, G. G. C. Pigott is confirmed in rank; April 20.

London Gazette, May 9, 1922

General Duties Branch

Flight-Lieut. D. Cloete, M.C., A.F.C., is seconded for duty with the Union Government of South Africa, for three years; July 21, 1921 (from half-pay list). Flying Offr. H. V. Puckridge, D.F.C., resigns his permanent commn.; May 10. Flying Offr. T. L. F. Burnett, M.B.E., is placed on the retired list on account of ill-health contracted on active service, and is granted the rank of Major; May 10. Flying Offr. R. J. P. Grebby, D.F.C., relinquishes his short service commn. on account of ill-health, contracted on active service, and is permitted to retain the rank of Lieut.; May 3.

Stores Branch

C. Littlejohn is granted a short service commn. as a Flying Offr. on probation, with effect from and with seniority of April 28.

Medical Service

Flying Offr. T. P. Harpur to be Flight-Lieut.; April 10. Flight-Lieut. L. Game is granted a short service commn., retaining his present substantive rank and seniority; April 21. The following are granted short service commns. in the ranks stated, with effect from and with seniority of April 24:—Flight-Lieut. J. B. Woodrow, Flying Offr. J. D. Leahy, M.B., B.A. The following are granted temp. commns. in the ranks stated, with effect from and with seniority of April 24:—Squad-Leader A. G. Higgins, Flight-Lieut. (Hon. Squadron-Leader) E. A. Aldridge, B.A.

Nursing Service

The following are confirmed in their appointments as Staff Nurses, with effect from the dates indicated:—Miss A. M. Hardwicke; September 17, 1921. Mrs. G. M. Rutledge; September 29, 1921.

London Gazette, May 12, 1922

General Duties Branch

Sqdn.-Ldr. P. C. Sherren, M.C., to take rank and precedence as if his appt. as Sqdn.-Ldr. bore date Aug. 1, 1921. Reduction to take effect from Jan. 6. Sqdn. Ldr. P. C. Sherren, M.C., is placed on half-pay, Scale B (May 12).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the R.A.F. are notified:—**Air Commodore.**—E. A. D. Masterman, C.M.G., O.B.E., A.F.C., from Inter-Allied Aeronautical Commission of Control (Germany) to Headquarters (Coastal Area) (Supernumerary) on disbandment of Inter-Allied Aeronautical Commission of Control (Germany). 8.5.22.

Wing-Commanders.—H. S. Turner, M.B.E., D.T.M., from No. 1 School of Technical Training (Boys), Halton, to Headquarters R.A.F. (Middle East) as Principal Medical Officer. 25.4.22. J. MacGregor, M.C., M.D., to No. 1 School of Technical Training (Boys), Halton, as Principal Medical Officer in Charge, R.A.F. Hospital, Halton. 25.4.22. A. V. Bettington, C.M.G., from R.A.F. Depot (Inland Area) to Half-pay list. 1.5.22. F. E. T. Hewlett, D.S.O., O.B.E., to Headquarters (Coastal Area) on completion of Special duty with Admiralty. 20.3.22.

Squadron-Leaders.—W. B. Cushion, from Care and Maintenance Party, Donibristle (Coastal Area), to Headquarters (Coastal Area). 10.5.22. A. J. Currie, from Headquarters (Middle East) to command No. 1 Armoured Car Company (Middle East). 7.4.22. M. B. G. Copeman, from Headquarters (Middle East) to command No. 2 Armoured Car Company (Middle East). 7.4.22. V. O. Rees, O.B.E., from Aircraft Park (Iraq) to R.A.F. Depot (Inland Area) (Supernumerary) (Non-effective). 31.3.22. P. Babington, M.C., A.F.C., from R.A.F. Depot (Inland Area) to Air Ministry (Director of Personnel). 1.4.22. A. J. Miley, O.B.E., from Air Ministry (Director-General of Supply and Research) to Aircraft Depot, Egypt (Middle East). 29.4.22. O. T. Boyd, O.B.E., M.C., A.F.C., from Air Ministry (Directorate of Operations and Intelligence) to R.A.F. Depot (Inland Area) (Supernumerary). 15.5.22. A. Corbett-Wilson, from No. 1 Flying Training School (Inland Area) to Headquarters (Middle East) (Supernumerary). 29.4.22. R. S. Maxwell, M.C., D.F.C., from R.A.F. Depot (Inland Area) to Air Ministry (Directorate of Operations and Intelligence). 15.5.22. R. L. G. Marix, D.S.O., from Motor Transport Repair Depot (Inland Area) to R.A.F. Depot (Inland Area) (Supernumerary) (Non-effective). 11.4.22. R. S. Overton, from R.A.F. Depot (Inland Area) to Inland Area Aircraft Depot (Inland Area) as Senior Medical Officer. 10.5.22. A. J. O. Wigmore, M.B., from Palestine Group Headquarters (Middle East) to Palestine Wing Headquarters (Middle East) as Senior Medical Officer. 1.4.22. A. G. Higgins, to Research Laboratory and Medical Officers' School of Instruction (Inland Area) on appointment to Temp. Com. 24.4.22. R. B. Maycock, O.B.E., from 230 Squadron (Coastal Area) to Marine and Armament Experimental Establishment (Coastal Area). 4.5.22. L. F. Forbes, M.C., from R.A.F. Depot (Inland Area) to command No. 2 Squadron (Inland Area). 15.5.22. A. J. Butler, M.C., A.F.C., from No. 2 Squadron (Inland Area) to R.A.F. Depot (Inland Area) (Supernumerary). 26.5.22. R. E. Bell, M.B., from Headquarters R.A.F. Ireland, to R.A.F. Depot (Inland Area) (Supernumerary). 5.5.22.

Flight-Lieutenants.—A. C. Randall, D.F.C., from R.A.F. Base, Leuchars (203 Squadron) (Coastal Area), to R.A.F. Depot (Inland Area) (Supernumerary). 3.4.22. H. G. P. Rees, from R.A.F. Depot (Inland Area) to Seaplane Training School (Coastal Area). 10.5.22. J. M. A. Costello, M.C., M.B., to Research Laboratory and Medical Officers' School of Instruction (Inland Area) on

appointment to Short Service Commission. 1.5.22. J. H. Wood, M.C., M.B., D.P.H., to Research Laboratory and Medical Officers' School of Instruction (Inland Area) on appointment to Temporary Commission. 1.5.22. R. M. King, from No. 207 Squadron (Inland Area) to R.A.F. Depot (Inland Area). 8.5.22. T. P. Y. Moore, from No. 216 Squadron (Middle East) to No. 2 Armoured Car Company (Middle East). 7.4.22. E. C. W. Fitzherbert, from Aircraft Park (Iraq) to R.A.F. Depot (Inland Area) (Supernumerary). 31.3.22. J. W. B. Grigson, D.S.O., D.F.C., from No. 55 Squadron (Iraq) to R.A.F. Depot (Inland Area) (Supernumerary). 31.3.22. C. H. Tancred, M.B.E., from Headquarters R.A.F. Iraq, to R.A.F. Depot (Inland Area) (Supernumerary). 31.3.22. P. H. Cummings, D.F.C., from No. 5 Squadron (India) to R.A.F. Depot (Inland Area) (Supernumerary). 6.4.22. G. C. Gardiner, D.F.C., from No. 84 Squadron (Iraq) to R.A.F. Depot (Inland Area) (Supernumerary). 31.3.22. R. E. H. Daniel, from R.A.F. Depot (Inland Area) to No. 1 Armoured Car Company (Middle East). 29.4.22. M. B. Ward, from School of Technical Training (Men) (Inland Area) to Aircraft Depot, Egypt (Middle East). 29.4.22. J. K. Waugh, D.S.C., from Instrument Design Establishment (Inland Area) to Seaplane Training School (Coastal Area). 10.5.22. H. L. Hammer, D.F.C., from Headquarters R.A.F. (Middle East) to R.A.F. Depot (Inland Area) (Supernumerary). 1.5.22. J. B. Woodrow, to Research Laboratory and Medical Officers' School of Instruction (Inland Area) on appointment to Short Service Commission. 24.4.22. E. A. Aldridge, M.C., to Research Laboratory and Medical Officers' School of Instruction (Inland Area) on appointment to Temporary Commission. 24.4.22. G. E. Livock, D.P.C., from No. 230 Squadron (Coastal Area) to Marine Armament Experimental Establishment (Coastal Area). 4.5.22. J. S. Goggin, from R.A.F. Base, Leuchars (Coastal Area), to Headquarters (Inland Area). 18.5.22. T. H. K. MacLaughlin, from 39 Squadron (Inland Area) to No. 2 Squadron (Inland Area). 17.5.22. G. H. H. Maxwell, M.B., from Inland Area Aircraft Depot (Inland Area) to 39 Squadron (Inland Area). 15.5.22. A. Williams, from Inland Area Aircraft Depot (Inland Area) to No. 2 Flying Training School (Inland Area). 15.5.22. O. Armer, from R.A.F. Depot (Inland Area) to No. 5 Flying Training School (Inland Area). 15.5.22. C. Fox-Pitt, from R.A.F. Depot (Inland Area) to Armament and Gunnery School (Inland Area). 8.5.22. N. S. Douglas, from No. 56 Squadron (Middle East) to No. 216 Squadron (Middle East). 1.5.22. J. H. D'Albiac, D.S.O., from No. 47 Squadron (Middle East) to R.A.F. Trans-Jordan Headquarters (Middle East). 1.4.22. W. H. L. O'Neill, M.C., from R.A.F. Depot (Inland Area) to R.A.F. Base, Leuchars (Coastal Area). 15.5.22. J. M. Burke, from R.A.F. Depot (Inland Area) to Marine Armament Experimental Establishment (Coastal Area). 15.5.22. H. C. Irwin, A.F.C., from R.A.F. Base, Leuchars (Coastal Area), to Air Ministry (Director of Operations and Intelligence). 15.5.22. R. H. Smyth, M.C., from No. 31 Squadron (India) to R.A.F. Depot (Inland Area) (Supernumerary). 15.4.22. C. McCollm Jones, M.A., from R.A.F. Central Hospital (Inland Area) to Central Medical Board (Inland Area). 22.5.22. O. St. Leger Campion, from No. 2 Squadron (Inland Area) to R.A.F. Central Hospital (Inland Area). 19.5.22.

IN PARLIAMENT

U.S. "Bombing" Report

VISCOUNT CURZON, on May 10, asked the Parliamentary Secretary to the Admiralty whether steps can be taken to publish the Report of the Joint Army and Navy Board appointed by the United States Government to enquire into sea and air power as a White Paper?

Mr. Amery: I am afraid that, owing to the expense involved, the printing of this Report on the results of the United States bombing and gunfire experiments with ex-German ships would not be justified, especially as it was published in the American Press last autumn. I shall, however, be happy to supply typed copies to any hon. members who may be interested.

VISCOUNT CURZON: Is the hon. gentleman aware that this Report, not only deals with the bombing of ex-German ships, but also gives very valuable conclusions arrived at by the Committee set up by the United States Government?

Mr. Amery: It is a very interesting Report, and I shall be very happy to send any hon. member who likes to write to me, a typed copy.

Commander Bellairs: Would it not be better to send a typed copy to the Library of the House of Commons?

Mr. Amery: Certainly.

New Director of Civil Aviation

THE Air Ministry announces that Maj.-Gen. Sir W. S. Brancker, K.C.B., A.F.C., has been appointed Director of Civil Aviation in the Air Ministry.

Air Ministry Resignations

WE learn that Wing-Commanders W. D. Beatty and W. O. Raikes, two heads of departments in the Air Ministry, have tendered their resignations.

Royal Air Force Contracts

MR. R. YOUNG asked the Secretary of State for Air what percentage of contracts for the Air Ministry has been referred to the Technical Costs Branch during the period March, 1921–March, 1922; and what was the saving effected and the total amount of the original quotations on which the savings were effected?

—Capt. Guest: Three classes of contracts are placed by the Air Ministry, namely, general stores, aeronautical stores, and works services, and by far the greater percentage of them are placed after open competition, which, of itself, affords a sufficient check on prices and makes costing unnecessary.

As regards general stores, quotations, totalling £176,500, or 22 per cent. of the value of all the contracts for such stores placed, were referred for costing in the financial year 1921–22, and a saving of nearly £29,000, or 16 per cent. of the amount of the quotations, was effected. During the financial year 1921–22, it has not been found necessary to refer quotations for aeronautical stores or works to the Costs Branch.

The Destroyed Zeppelins

As an aftermath of the destruction of the airships which should have been delivered to the Allied and Associated Powers, it is announced that the Ambassadors' Council have decided that Germany is to pay nine million gold marks (£450,000) by way of compensation. And a very cheap let-off, assuming she pays it.

IMPORTS AND EXPORTS, 1921-1922

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910). For 1910 and 1911 figures see "FLIGHT" for January 25, 1912; for 1912 and 1913, see "FLIGHT" for January 17, 1914; for 1914, see "FLIGHT" for January 15, 1915; for 1915, see "FLIGHT" for January 13, 1916; for 1916, see "FLIGHT" for January 11, 1917; for 1917, see "FLIGHT" for January 24, 1918; for 1918, see "FLIGHT" for January 16, 1919; for 1919, see "FLIGHT" for January 22, 1920; for 1920, see "FLIGHT" for January 13, 1921; and for 1921, see "FLIGHT" for January 19, 1922.

	Imports		Exports		Re-Exportation	
	1921.	1922.	1921.	1922.	1921.	1922.
	£	£	£	£	£	£
Jan. ...	4,459	1,152	87,128	76,552	2,285	23
Feb. ...	2,379	567	59,829	69,129	19	1,100
Mar. ...	14	1,471	118,199	166,607	1,565	100
April...	1,370	3,846	138,983	139,995	450	5,880
	8,222	7,036	404,139	452,283	4,319	7,103

SIDE-WINDS

We understand that the Bristol Aeroplane Co., Ltd., have concluded arrangements for granting the sole licence to manufacture the 400 h.p. "Bristol" Jupiter radial air-cooled aero engine in France to the well-known Gnome and Le Rhone Engine Co. The announcement is of more than ordinary interest as an indication of the high estimate formed in regard to the "Bristol" engines by the French aviation experts. The fact that the "Bristol" Jupiter and "Bristol" Lucifer engines are the only two air-cooled engines which have ever satisfied the strenuous conditions of the British Air Ministry Type Tests has created a great impression in Continental aviation centres. The selling rights for the "Bristol" Jupiter engine in France and many of the countries of Europe have also been ceded to the Gnome and Le Rhone Co.

LIEUT.-COL. C. F. HITCHINS, D.S.O., M.I.Mech.E., who recently resigned the appointment of General Manager to Agricultural and General Engineers, Ltd., has joined Sir W. G. Armstrong, Whitworth and Co., Ltd.

"BY AIR TO EVERYWHERE" is the title of an extremely useful and attractive booklet issued by the Lepaerial Bureau of 27, Piccadilly. The first issue for the present season has just been published, and contains the time-tables of the more important air lines in Europe, together with fares and other information useful to air travellers. At the end of the book will be found a sketch-map which gives an excellent idea of the number and extent of the air lines at present in operation. Excellent little sketches of some of the new machines in regular use on the various air lines illustrate the book, and altogether the publication is one which all intending travellers by air should make a point of securing. Copies can be had on application at the office of the Lepaerial Bureau, 27, Piccadilly (under the Piccadilly Hotel).

PUBLICATIONS RECEIVED

The Professional Photographer, May, 1922. Kodak, Ltd., Kingsway, London, W.C. 2.

The Year Book of Wireless Telegraphy and Telephony, 1922. London: The Wireless Press, Ltd., 12-13, Henrietta Street, Strand, W.C. 2. Price 15s.

Technical Note No. 25. Center of Pressure Coefficients for Aerofoils at High Speeds. By W. S. Diehl. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Technical Note No. 91. Notes on Propeller Design: The Energy Losses of the Propeller—I. By Max M. Munk. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Technical Note No. 93. The Background of Detonation. By S. W. Sparrow. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Technical Note No. 94. Notes on Propeller Design, II: The Distribution of Thrust over a Propeller Blade. By Max M. Munk. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Technical Note No. 95. Notes on Propeller Design—III. The Aerodynamical Equations of the Propeller Blade Elements. By Max M. Munk. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Report No. 135. Performance of B.M.W. 185-Horsepower Airplane Engine. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

THE LONDON AERO-MODELS ASSOCIATION

The winner of Competition No. 3 was Mr. M. Levy; second prize, Mr. C. Hersom; third prize, Mr. F. de P. Green.

At the meeting held at Headquarters on Thursday last, the 11th inst., Mr. W. Hersom occupying the chair, it was decided to hold an Aerial Golf Competition on Hackney Marshes, on Saturday, June 3, at 4.30 p.m., prizes having kindly been given by Mr. F. de P. Green and Mr. L. Grey. This competition is limited to members only, and any type of model is eligible; the only condition laid down is, "All models must have and fly with an under-carriage."

On Sunday, the 21st inst., a special Flying Demonstration will be held on Parliament Hill Fields at 10.30 a.m., and it is hoped every member will endeavour to bring a model and fly same.

On Saturday, the 20th inst., a Smoking Concert under the management of Mr. J. E. Louch is being held at Headquarters, 20, Great Windmill Street, at 7 p.m. prompt.

On Thursday, the 25th inst., a Discussion will be opened on "The Construction of Built-up Fuselages for Enclosed Motors," and those members who can be requested to bring a fuselage along with them for demonstration purposes.

Report from Research Committee

The propeller-testing apparatus is now completed and ready for tests. A few propellers have been tested for thrust, and the apparatus appears to work satisfactorily, the results being quite up to expectations. The few trials which have taken place seem to show that the apparatus will be a complete success for testing propellers up to 10 ins. diameter. Further details and results will be made known after the next meeting of the Research Committee in the course of a week. Hon. Sec. of Research Committee *pro tem.*, W. E. Evans.

Meetings are held at Headquarters, 20, Great Windmill Street, Piccadilly Circus, W. 1, every Thursday evening at 7.30 p.m. Intending members cordially invited. Particulars of the Association may be obtained from A. E. Jones, Hon. Sec., 48, Narcissus Road, West Hampstead, N.W. 6.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motors. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1921

Published May 18, 1922

- 226. F. and A. RADOSEVIC. Blade wheels of propellers. (156,229.)
- 1,159. ZEPPELIN-WERKE LINDAU GES. and C. DORNIER. Hollow bodies for aircraft. (157,265.)
- 1,274. LUFT-FAHRZEUG GES. Coolers for aero engines. (160,445.)
- 1,610. H. E. S. HOLT. Parachute apparatus. (178,519.)
- 1,919. J. B. PASSAT. Planes, wings and propeller blades. (178,528.)
- 2,209. C. MENDEL. Gyroscopical stabilising means for aircraft. (178,542.)
- 2,571. H. JUNKERS. Landing-gear. (158,277.)
- 2,652. G. H. SCOTT. Mooring-masts. (178,568.)
- 9,072. H. F. ADAMS. Mascots. (178,692.)

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages iii and xiv).

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